

REMARKS

In the Office Action, the Examiner rejected claims 1-32. By the present Response, Applicants amend claims 1, 6, 8, 11, 15-18, 21, 23, 28, 30, and 32 to further clarify the claimed subject matter and cancel claims 2, 3, 7, 9, 10, 13, 14, 19, 20, and 22. Further, Applicants add new claims 33-42. Upon entry of these amendments, claims 1, 4-6, 8, 11, 12, 15-18, 21, and 23-42 will remain pending in the present patent application. In view of the foregoing amendments and the following remarks, Applicants respectfully request reconsideration and allowance of all pending claims.

Rejections Under 35 U.S.C. § 102

The Examiner rejected claims 1 and 3 under 35 U.S.C. § 102(b) as being anticipated by Cannon (U.S. Patent No. 3,619,249); claims 1-2, 6-8, 10-11, 14-22, and 28-32 under 35 U.S.C. § 102(b) as being anticipated by Chang et al. (U.S. Publication No. 2002/0086118 A1); claims 1, 3, 5-9, 11, and 14-17 under 35 U.S.C. § 102(b) as being anticipated by Richardson et al. (U.S. Patent No. 6,350,697 B1); and claim 13 under 35 U.S.C. § 102(b) as being anticipated by Richardson et al. or Chang et al. in view of Moran (U.S. Patent No. 4,397,724). Applicants respectfully traverse these rejections.

Anticipation under Section 102 can be found only if a single reference shows exactly what is claimed. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 U.S.P.Q. 773 (Fed. Cir. 1985). For a prior art reference to anticipate under Section 102, every element of the claimed invention must be identically shown in a single reference. *In re Bond*, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). To maintain a proper rejection under Section 102, a single

reference must teach each and every element or step of the rejected claim. *Atlas Powder v. E.I. du Pont*, 750 F.2d 1569 (Fed. Cir. 1984). Thus, if the claims recite even one element not found in the cited reference, the reference does not anticipate the claimed invention.

Applicants do not agree with the Examiner's characterization of the cited references. However, Applicants have chosen to amend several of the pending claims without prejudice to further clarify the claimed subject matter. Particularly, Applicants amended claims 1, 8, and 28 to incorporate the subject matter formerly recited by claim 22, which has been canceled by the present Response. Applicants note that, in the recent Office Action, the Examiner rejected claim 22 on the sole basis of the Chang et al. reference. This reference, however, fails to disclose the subject matter formerly recited in claim 22 and now incorporated in independent claims 1, 8, and 28.

For instance, independent claim 1, as amended, recites "introducing a polymer-forming gas within the reaction chamber *concurrent with* etching of a photoresist layer of a first semiconductor wafer in the reaction chamber." (Emphasis added). Further, independent claim 8 recites "providing a polymer-building gas in the reaction chamber *during* the etching of the photoresist layer of the first semiconductor wafer." (Emphasis added). Similarly, independent claim 28 recites "providing a polymer-building gas in the reaction chamber *during* etching of a photoresist layer of the first semiconductor wafer." (Emphasis added). The cited references fail to show these recited features.

In the Office Action, the Examiner particularly relied on paragraphs [0035] and [0038] of the Chang et al. reference as showing these features. Applicants respectfully submit that the

Examiner has mischaracterized the cited reference. Paragraph [0038] of the Chang et al. reference merely indicates that spatial distribution of holes through a gas distribution plate can be varied to optimize etching of various layers, such as a photoresist layer, a silicon dioxide layer, and an underlayer material on a semiconductor wafer. *See* Paragraph [0038], lines 11-16. Furthermore, paragraph [0035] of the Chang et al. reference merely teaches that various gases source materials may be provided within a processing chamber 152. *See* Paragraph [0035], lines 1-2. As noted by Chang et al., these source materials may include halogens for etching aluminum and aluminum alloys; other etchants such as HCl; and polymer-forming gases. *See* Paragraph [0035], lines 2-5. However, the Chang et al. reference is silent with respect to the *particular* gases used during etching of a photoresist layer of a wafer, so the Chang et al. reference certainly does not disclose that the polymer-forming gases are introduced during etching of a photoresist layer.

The mere fact the Chang et al. reference teaches that a polymer forming gas may be introduced into the chamber at some indiscriminate time, and that some indiscriminate gas may be used to etch a photoresist layer, *does not* suggest to one skilled in the art that the polymer forming gas is being inserted in the chamber *during* etching of a photoresist layer. Consequently, the cited reference cannot be reasonably considered to disclose “introducing a polymer-forming gas within the reaction chamber *concurrent with* etching of a photoresist layer of a first semiconductor wafer” or “providing a polymer-building gas in the reaction chamber *during* the etching of a photoresist layer.” (Emphasis added). For at least this reason, the Chang et al. reference fails to anticipate independent claims 1, 8, and 28. Accordingly, Applicants

respectfully request withdrawal of the Examiner's rejections under 35 U.S.C. § 102 and allowance of independent claims 1, 8, and 28, and the claims depending therefrom.

Rejections Under 35 U.S.C. § 103

The Examiner rejected claims 4 and 23-27 under 35 U.S.C. § 103(a) as unpatentable over Richardson et al. or Chang et al. in view of Official Notice. The Examiner also rejected claim 12 under 35 U.S.C. § 103(a) as unpatentable over Chang et al. in view of Lee et al. (U.S. Patent No. 6,080,680). Applicants respectfully traverse these rejections.

The burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (PTO Bd. App. 1979). Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). Accordingly, to establish a *prima facie* case, the Examiner must not only show that the combination includes *all* of the claimed elements, but also a convincing line of reason as to why one of ordinary skill in the art would have found the claimed invention to have been obvious in light of the teachings of the references. *Ex parte Clapp*, 227 U.S.P.Q. 972 (B.P.A.I. 1985).

Applicants' respectfully note that claim 23 has been amended in the same fashion as independent claim 28. Accordingly, Applicants believe that independent claim 23 is also allowable over the cited references. Further, dependent claims 4, 12, and 24-27 depend from either independent claim 1 or independent claim 23. With respect to claim 12, the Lee et al.

reference fails to obviate the deficiencies of the Chang et al. reference, nor does the Examiner assert that it does. As a result, these claims are believed allowable not only on the basis of their dependency from an allowable base claim, but also for the subject matter separately recited by each dependent claim. For these reasons, Applicants respectfully request withdrawal of the Examiner's rejections and allowance of claims 4, 12, and 23-27.

New Claims

As noted above, Applicants have added new claims 33-42 to the present application. Because Applicants canceled an equivalent number of claims by the present Response, no fee is believed due for these new claims. These new claims are supported by the specification. *See, e.g.,* Specification, page 7, lines 6-14; page 10, line 19 - page 11, line 4. Applicants note that each of claims 33-42 depends from one of independent claims 1, 8, 23, or 28, which are allowable for the reasons provided above. Consequently, claims 33-42 are also allowable by virtue of their dependency from an allowable base claim, in addition to the subject matter recited by each dependent claim. Accordingly, Applicants respectfully request allowance of claims 33-42.

Conclusion


In view of the amendments and remarks set forth above, Applicants respectfully request reconsideration of the Examiner's rejections and allowance of all pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

General Authorization for Extensions of Time

In accordance with 37 C.F.R. § 1.136, Applicants hereby provide a general authorization to treat this and any future reply requiring an extension of time as incorporating a request therefor. Furthermore, Applicants authorize the Commissioner to charge the appropriate fee for any extension of time to Deposit Account No. 13-3092; Order No. MICS:0122/FLE (03-0208).

Respectfully submitted,

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